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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 2 and 30

[ET Docket No. 21-186; GN Docket No. 14-177; DA 21-482; FRS 27278]

Emission Limits for the 24.25-27.5 GHz Band

AGENCY: Federal Communications Commission (FCC).

ACTION: Requests for comments.

SUMMARY: In this document, The Office of Engineering and Technology (OET) and the Wireless Telecommunications Bureau (WTB) seek comment on implementing certain of the decisions of the World Radiocommunication Conference held by the International Telecommunication Union (ITU) in 2019 (WRC-19) regarding the 24.25-27.5 GHz band. Specifically, OET and WTB seek comment on aligning the FCC's rules with the unwanted emissions limits into the passive 23.6-24.0 GHz band that were adopted at WRC-19.

DATES: Comments are due on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**, and reply comments are due on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Federal Communications Commission, 45 L Street NE, Washington, DC 20554.

FOR FURTHER INFORMATION CONTACT: Nicholas Oros, Office of Engineering and Technology, 202-418-0636, Nicholas.Oros@fcc.gov or John Schauble of the Wireless Telecommunications Bureau, at (202) 418-0797, or John.Schauble@fcc.gov.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's document, *Public Notice*, DA 21-482, ET Docket No. 21-186, GN Docket No. 14-177, released April 26, 2021. The full text of this document is available for public inspection and can be downloaded at: *https://www.fcc.gov/document/oet-wtb-seek-comment-emission-limits-2425-275-ghz-band* or by using the search function for ET Docket No. 21-186 on the Commission's ECFS web page at www.fcc.gov/ecfs.

SYNOPSIS

1. In 2017, the Commission established service rules for fixed and mobile operation in the 24.25-24.45 GHz and 24.75-25.25 GHz bands (collectively, 24 GHz band) under the Upper Microwave Flexible Use Service (UMFUS). The Commission applied the UMFUS rules, including the technical rules, to the 24 GHz band. The UMFUS rules specify that emissions outside of a licensee's assigned frequency block must be limited to –13 dBm/MHz. With respect to the passive systems operating in the 23.6-24 GHz band, the Commission noted that ongoing international studies include analyses to determine International Mobile Telecommunications (IMT) out-of-band emission limits necessary to protect passive sensors onboard weather satellites in that band, and it acknowledged that the Commission's UMFUS rules might be revisited once these international studies have been completed.

2. WRC-19 allocated 24.25-25.25 GHz to mobile (except aeronautical) on a primary basis in Regions 1 and 2, globally identified the 24.25-27.5 GHz band for IMT, and established limits of unwanted emissions that apply to IMT in the 24.25-27.5 GHz band to protect Earth Exploration-Satellite Service (EESS) passive systems in the 23.6-24.0 GHz band from harmful interference. To protect EESS passive systems, WRC-19 modified a footnote to the International Table of Allocations to specify that Resolution 750 (Rev. WRC-19) applies to the 24.25-27.5 GHz band. Resolution 750 specifies unwanted emission limits as the amount of power that may be radiated into any 200 megahertz of the 23.6-24.0 GHz passive band by IMT base stations and IMT mobile stations operating in the 24.25-27.5 GHz band. Resolution 750 specifies unwanted emission limits in terms of Total Radiated Power (TRP) that currently apply to IMT stations and stricter emission limits that are effective for IMT stations brought into use after September 1, 2027. These unwanted emission limits are shown in Table 1.

Table 1: WRC-19 Resolution 750 Unwanted emissions permitted within any 200 megahertz in the 23.6-24 GHz passive band

Type of Station	Current TRP Limits	TRP Limits After Sept. 1, 2027
IMT Base Stations	–33 dBW	–39 dBW
IMT Mobile Stations	–29 dBW	–35 dBW

3. The WRC-19 Final Acts updated the ITU Radio Regulations, including Resolution 750. The National Telecommunications and Information Administration (NTIA), FCC, and the Department of State share responsibility for implementing the WRC Final Acts in the United States. The Commission has authority to implement the changes to the Radio Regulations through its rulemaking proceedings. Given the importance of limiting unwanted emissions into the passive 23.6-24.0 GHz band, OET and WTB seek to develop a record on implementing the changes to the emission limit in Resolution 750 applicable to active services in the 24 GHz band.

4. OET and WTB seek comment broadly on implementing certain of the WRC-19 outcomes with respect to the 24.25-27.5 GHz band. Noting that the United States is a signatory to the treaty text of the Radio Regulations, OET and WTB seek comment on modifying the Commission's rules in response to the unwanted emission limits and international allocation table footnotes adopted for the 24.25-27.5 GHz band at the WRC-19. These rule changes could include, for example, adding footnotes to the United States Table of Frequency Allocations or aligning the Commission's technical rules.

5. Appropriate out-of-band emission limits in the 24.25-27.5 GHz band are important to protect passive sensing operations in the 23.6-24.0 GHz band. The limits adopted at WRC-19 are to be measured within a 200-megahertz bandwidth within the 400-megahertz 23.6-24 GHz passive band. For comparison with the Resolution 750 unwanted emission limit, a signal at –13 dBm/MHz (conductive or TRP) would result in –20 dBW within a 200-megahertz bandwidth. However, OET and WTB note that the –13 dBm/MHz emission limit applies at the edge of the UMFUS band—*i.e*. 24.25 GHz. Given this, OET and WTB seek to understand what level of emissions can be expected within the 23.6-24 GHz band from UMFUS transmitters, and whether and to what extent harmful interference to passive systems operating in the 23.6-24.0 GHz band is expected to occur from new 5G deployments at the current UMFUS limit.

6. Recognizing that the unwanted emission limits in Resolution 750 and the current out-of-band emission limits in the UMFUS rules are specified differently, and further recognizing the two-phased approach for the unwanted emissions limits that were adopted in WRC-19, OET and

WTB seek information on whether and how equipment intended for use under the UMFUS rules in the 24.25-24.45 GHz and 24.75-25.25 GHz bands can be designed to conform to the Resolution 750 limits—both the current limits and the more restrictive limits that apply to new equipment brought into use after September 1, 2027. Can licensees meet the WRC-19 TRP limits by the relevant deadlines? Is it possible that licensees can meet the –39 dBW limit for IMT base stations and the –35 dBW limit for IMT mobile stations prior to 2027? What steps, if any, can the Commission take to help accelerate development and deployment of equipment that complies with the post-2027 limits?

7. OET and WTB note that Resolution 750 specifies TRP as the only means of meeting the required emission limits. Are there any difficulties in performing over the air TRP measurements at such low signal levels in the 24.25-24.45 GHz and 24.75-25.25 GHz bands? Consistent with the current UMFUS rules, should a conductive power methodology also be included as an alternative means for equipment certification?

8. The UMFUS rules allow licensees flexibility as to the services they will deploy and the architecture of their networks. Under these rules licensees will be able to deploy mobile services. Licensees will also have the freedom to implement point-to-point and point-to-multipoint systems. The unwanted emission limits of Resolution 750 apply only to IMT base stations and mobile stations. The Commission's rules do not define IMT and do not require that equipment complying with a particular technical standard be used in a band licensed under the UMFUS rules. If the Commission were to adopt the emission limits in Resolution 750 for the 24.25-27.5 GHz band, how should it determine to what stations these limits will apply? Should they only apply to systems that meet the definition of IMT as specified by the ITU? Should the rules apply to point-to-point and point-to-multipoint equipment licensed under the UMFUS rules? Should any mobile UMFUS equipment be required to comply with these unwanted emission limits regardless of the technology used, the application, and the density of deployment?

FEDERAL COMMUNICATIONS COMMISSION

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